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**AN EXTENSIBLE TYPE SYSTEM FOR REPRESENTING AND CHECKING
CONSISTENCY OF PROGRAM COMPONENTS DURING THE PROCESS OF
COMPILATION**

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ABSTRACT

A representation of types, type-checker, and compiler are provided for checking consistency in various forms of an intermediate language. Type-checking a programming language in a compiler is accomplished by taking one or more rule sets as input to a type-checker, which selects one or more of the rule sets based upon any one, or combination of two or more, of numerous criteria. Among them are stage of compilation, source language, architecture, and level of typing present in the language being type-checked. The language is then type-checked using the selected one or more rule sets. The rule sets can include one rule set corresponding to strong type-checking, one rule set corresponding to weak type-checking, and one rule set corresponding to representation type-checking. In the alternative, a compiler can be provided with a type-checker that constructs the one or more sets of rules at runtime from a larger set of rules based on any one, or combination of two or more, of the previously mentioned criteria.

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